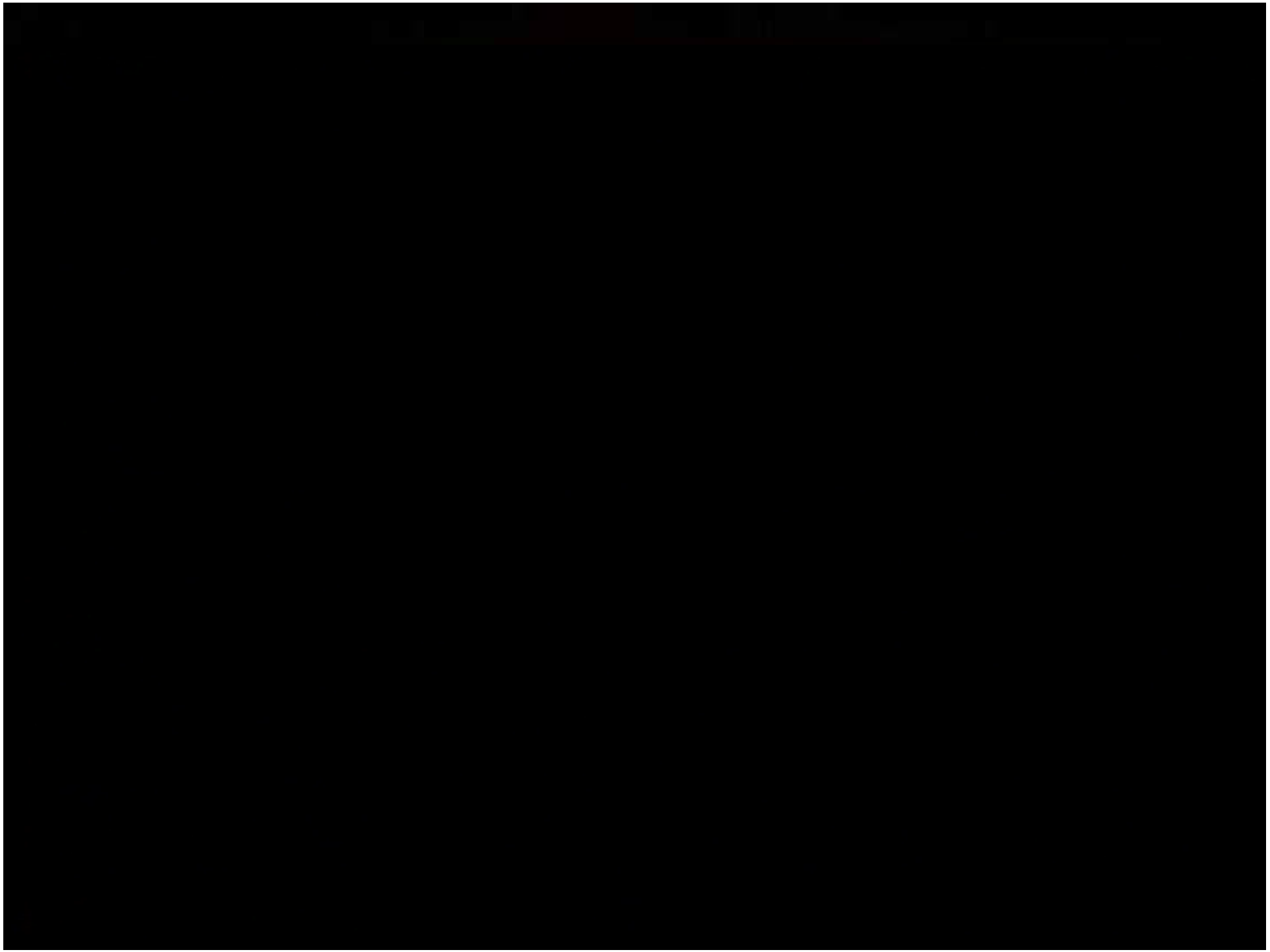
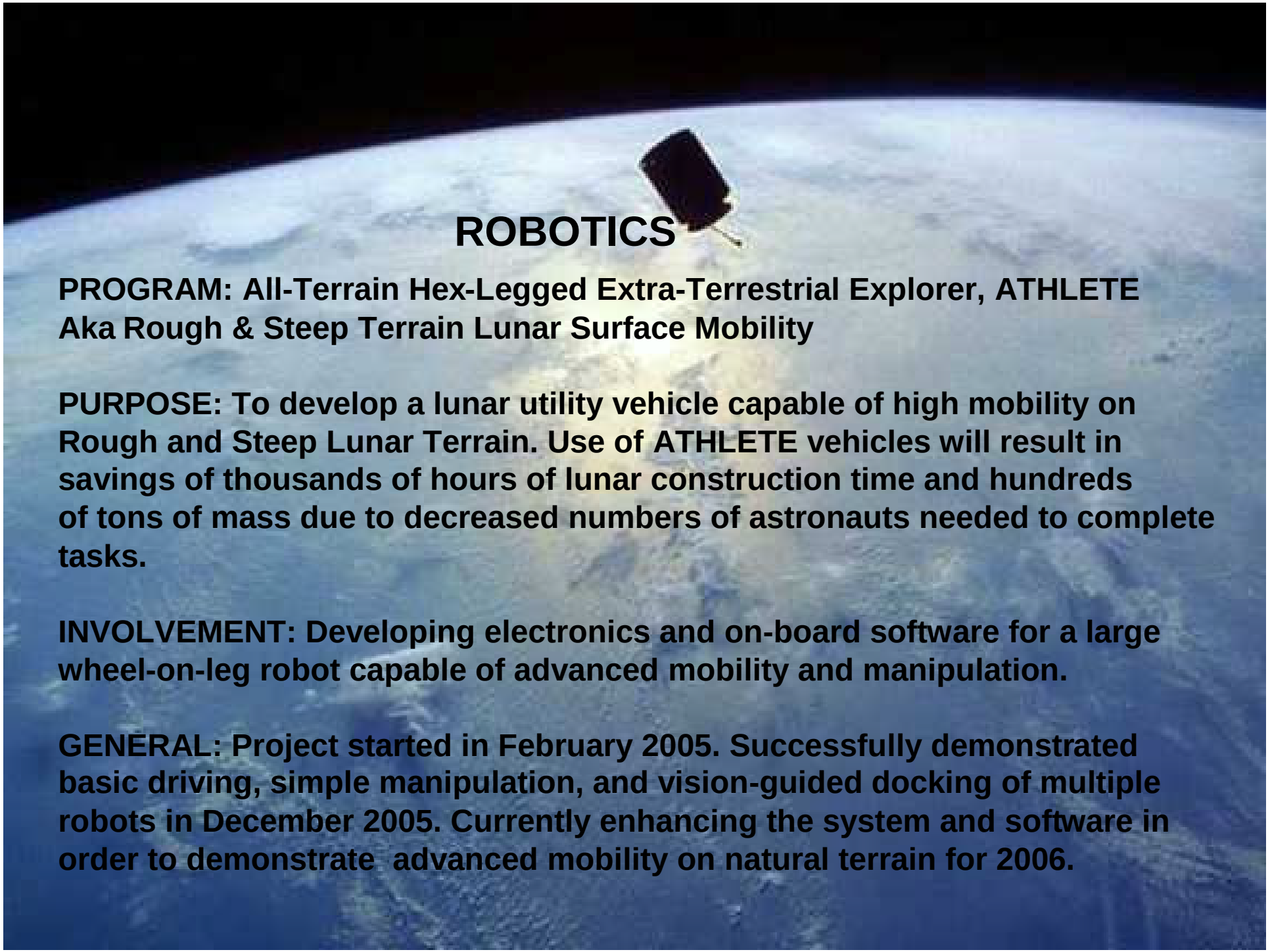

Northrop Grumman
“Unleashing the power of technology to create value and knowledge for our clients with mission critical needs”





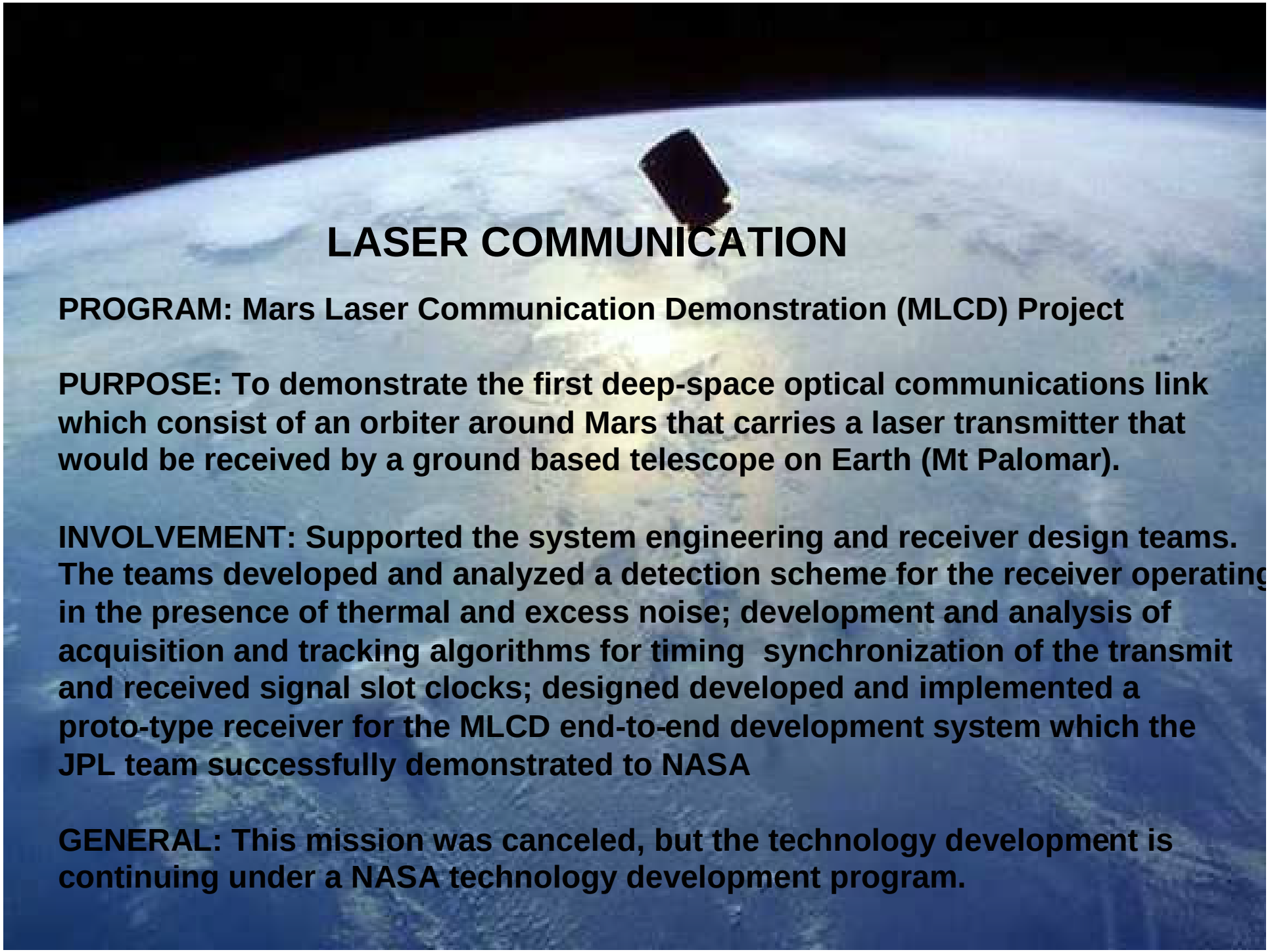
ROBOTICS

PROGRAM: All-Terrain Hex-Legged Extra-Terrestrial Explorer, ATHLETE
Aka Rough & Steep Terrain Lunar Surface Mobility

PURPOSE: To develop a lunar utility vehicle capable of high mobility on Rough and Steep Lunar Terrain. Use of ATHLETE vehicles will result in savings of thousands of hours of lunar construction time and hundreds of tons of mass due to decreased numbers of astronauts needed to complete tasks.

INVOLVEMENT: Developing electronics and on-board software for a large wheel-on-leg robot capable of advanced mobility and manipulation.

GENERAL: Project started in February 2005. Successfully demonstrated basic driving, simple manipulation, and vision-guided docking of multiple robots in December 2005. Currently enhancing the system and software in order to demonstrate advanced mobility on natural terrain for 2006.



LASER COMMUNICATION

PROGRAM: Mars Laser Communication Demonstration (MLCD) Project

PURPOSE: To demonstrate the first deep-space optical communications link which consist of an orbiter around Mars that carries a laser transmitter that would be received by a ground based telescope on Earth (Mt Palomar).

INVOLVEMENT: Supported the system engineering and receiver design teams. The teams developed and analyzed a detection scheme for the receiver operating in the presence of thermal and excess noise; development and analysis of acquisition and tracking algorithms for timing synchronization of the transmit and received signal slot clocks; designed developed and implemented a proto-type receiver for the MLCD end-to-end development system which the JPL team successfully demonstrated to NASA

GENERAL: This mission was canceled, but the technology development is continuing under a NASA technology development program.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and partners
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